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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/787,021	04/18/2001	Naoyuki Kobayashi	HST10112PUSA	8135

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EXAMINER

LEADER, WILLIAM T

ART UNIT

PAPER NUMBER

1741

DATE MAILED: 01/29/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/787,021

Applicant(s)

Kobayashi et al

Examiner

William Leader

Group Art Unit

1741

---The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address---

Period for Response

A SHORTENED STATUTORY PERIOD FOR RESPONSE IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a response be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for response is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to respond within the set or extended period for response will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☐ Responsive to communication(s) filed on _____.
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1 and 3-24 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1 and 3-24 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
- ☐ received in Application No. (Series Code/Serial Number) _____.
- ☒ received in this national stage application from the International Bureau (PCT Rule 1.7.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 6
- ☐ Interview Summary, PTO-413
- ☒ Notice of References Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other _____

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Claims 3-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 as written is dependent on claim 2 which has been canceled. It is noted that the limitations of claim 3 are the same as those of claim 9.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

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Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3, 9 and 19-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Sonoda et al.

The Sonoda et al patent is directed to a process for forming a lubricative film for cold working on titanium and titanium alloy substrates. The substrates are immersed as the cathode in an electrolytic phosphate conversion coating bath which contains zinc cations and phosphate anions. An electric current is passed through the substrate to form a phosphate conversion coating. See the abstract. Thus, the Sonoda et al patent meets the limitations of claim 1, steps I(A), I(B), II and III. The bath contains zinc ions in a concentration of 1 to 50 g/l and phosphate ions in a concentration of 3 to 140 g/l. These ranges overlap the ranges recited in claims 1 and 24. The bath may also contain calcium, manganese or iron ions. These correspond to the metals recited in instant claims 3 and 9. Sonoda et al teach that the bath may additionally contain an oxidizing agent such as nitric acid. See column 2, lines 18-34. This teaching meets the limitation of claim 1, step I(C). The pH of the bath ranges from a highly acidic 1.0 to a moderately acidic 5.0 (column 2,

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lines 35-37). A bath with a highly acidic pH of 1 would be expected to correspond to the amount of auxiliary acid recited in claim 1, last paragraph and 22 step I(C).

Coating is performed at a temperature ranging from 30° to 80° C (column 2, lines 39-41). Current density between 0.2 and 30 A/sq dm and electrolysis time between 10 seconds and 5 minutes may be used (column 2, lines 49-52). The coverage of the zinc phosphate film is between 2 and 20 g/sq m. Additionally, a lubricant is added on top of the phosphate film. This meets the limitation of claims 1, step (IV).

Materials used as lubricants include known materials such as fatty acid sodium soap, oils and fats, mineral oils, solid lubricants, and the like (column 2, lines 56-62). These lubricants correspond to the lubricants recited in instant claims 7, 8, 13, 14, 17, 18, 20 and 21. In a preferred embodiment, the substrates are first treated with a colloidal titanium-based surface adjustment agent prior to immersion in the conversion coating bath. See column 2, lines 63-68. This treatment corresponds to the treatment of instant claims 6, 12, 16 and 19.

Claims 4-8 and 10-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sonoda et al as applied to claims 1, 3, 9 and 19-24 above, and further in view of Shimaura et al (,348,640) and Witte (US 4,904,352 A).

The Sonoda et al patent is taken as above. Instant claims 4 and 10 recite that the Ca:Zn ratio is from 0.1:1 to 2:1. Sonoda et al do not disclose these specific

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ranges. However, as noted above, Sonoda et al disclose zinc ions in a concentration of 1 to 50 g/l and a phosphate concentration of 3 to 140 g/l. These ranges significantly overlap the ranges concentration recited in instant claims 1 and 24. Based on the suggestion of Sonoda et al to include calcium ions, one of ordinary skill in the art would have been able to determine an appropriate amount as recited in claims 4 and 10. This is especially evident in view of Shimakura et al. The Shimakura et al patent is directed to forming a conversion film using a phosphate-based conversion solution. Shimakura et al discloses that the solution may contain both zinc and calcium ions in amounts where the ratio overlaps that recited in instant claims 4 and 10. See column 3, lines 55-60. The prior art or record is indicative of the level of skill of one of ordinary skill in the art. It would have been obvious at the time the invention was made to have chosen the ratio of zinc to calcium as recited in instant claim 2 because Shimakura et al shows that amounts of zinc and calcium producing such a range of ratios result in the formation of an effective conversion coating.

In example 1 of Sonoda et al a cleaned sheet of titanium was treated with the conversion coating bath. The reference is silent as to how the sheet of titanium was cleaned.

The Witte patent is directed to a process for electrolytically coating a titanium article. Prior to coating, the titanium article is initially cleaned by

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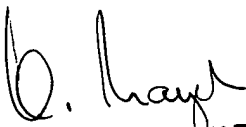
conventional methods to remove oxides and surface contamination. The conventional cleaning methods that may be used include pickling and rinsing. See column 4, lines 31-41. This corresponds to the pickling and rinsing steps recited in instant claims 5, 11 and 15. It would have been obvious at the time the invention was made to have cleaned the titanium substrates of Sonoda et al by pickling and rinsing because these are conventional cleaning steps which are known to be useful in preparing titanium substrates for coating as shown by Witte.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William Leader, whose telephone number is (703) 308-2530. The examiner can normally be reached Mondays-Fridays from 7:30 AM to 3:30 PM eastern time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathryn Gorgos can be reached at (703) 308-3328. The fax phone number for *official* after final faxes is (703) 872-9311. The fax phone number for all other *official* faxes is (703) 872-9310. Unofficial communications to the Examiner should be faxed to (703) 305-7719.

Any inquiry of a general nature or relating to the status of this application should be directed to the receptionist whose telephone number is (703) 308-0661.

William Leader:wtl
January 25, 2002


KISHOR MAYEKAR
PRIMARY EXAMINER